**Africa RISING ESA**

**2017/2018 workplan**

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1. **Malawi**

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| *To provide pathways out of hunger and poverty for smallholder families through sustainably intensified farming systems that sufficiently improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.* | | | | | | | | | | |
|  | ***Start date*** | ***End date*** | ***Research Question (From ESA Phase II Proposal; e.g. A1, C8)*** | ***Milestone (Tangible descriptors; e.g. number of experiments; number of trainings conducted)*** | ***Means of Verification (Refer to attached new logframe for guidance)*** | ***SI Domains and Indicators*** | ***SI Indicator Metrics and Level of Measurement*** | ***FtF Indicators and Targets*** | ***Custom Indicators and Targets*** | ***Action Sites*** |
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| **Project Outcome 1: Productivity, diversity, and income of crop-livestock systems in selected agro-ecologies enhanced under climate variability** | | | | | | | | | | |
| **Output 1.1: Demand-driven, climate-smart, integrated crop-livestock research products (contextualized technologies) for improved productivity, diversified diets, and higher income piloted for specific typologies in target agro-ecologies *[and scaled in Outcomes 4 and 5].*** | | | | | | | | | | |
| Activity 1.1.1: Assess and iteratively improve crop-livestock combinations from Phase I | | | | | | | | | | |
| Sub-activity 1.1.1.1: Increase the number of engaged villages within EPAS selected during Year 1 in Machinga and Mangochi where adaptive water management practices are implemented | 1-Jan-18 | 30-Dec-18 | A1, A2, B4; How best could adaptive water management practices be implemented to positively respond to extreme weather conditions (drought/ excess rainfall)? | At least 600 new farmers engaged | Farmer lists and reports, Field protocols | Productivity (Crop productivity, Crop biomass productivity, Yield gap); Economic (Profitability, Labour requirement) | Yield (Field, farm); yield gap per crop (Field, farm); residue production ((Field, farm); Net income (Field/plot level); farmer rating of labor (Field, farm) | 4.5.2 (39) = 600 |  | Machinga/ Mangochi |
| Sub-activity 1.1.1.2: Establish feeding trials with local goats | 1-Jan-17 | 30-Dec-18 |  |  | On-going experiments | Productivity (Animal productivity) | Animal product/y) (HH) | 4.5.2 (39) = 3 |  | Golomoti/Dedza/Machinga |
| Sub-activity 1.1.1.3: Test the effectiveness of improved local goat production technologies | 1-Jan-17 | 30-Dec-18 | A2; Does use of local feed resources result in improved productivity local goat breeds? | Demonstration pens established | Trial protocol/reports | Productivity (Animal productivity) | Animal product/y (HH) | 4.5.2 (39) = 3 | Draft publication =1 | Linthipe, Golomoti |
| Activity 1.1.2: Evaluate and implement pathways that are effective at improving access to seeds and clonal materials of modern varieties of legumes, cereals, vegetables, and forages | | | | | | | | | | |
| Sub-activity 1.1.2.1: Monitor the impact of Farmer Field School (FFS) training materials on seed systems | 1-Mar-18 | 1-Sep-18 |  |  |  |  |  |  |  |  |
| Sub-activity 1.1.2.2: Procure groundnut and soybean foundation seed for Year 2 (this activity is listed as 2017 but it is for 2018 as rainfall season starts before 2018) | 1-Oct-17 | 1-Nov-17 | When foundation/certified seed is made available to a critical mass of lead farmers in conjunction with appropriate seed production training, a multiplier effect is generated that increases community-wide seed availability over a three-year cycle? | At least 4000 kg groundnut foundation seed procured from ICRISAT At least 4000 kg Makwacha soybean foundation seed procured from ICRISAT | Seed sourced from reputable producers/suppliers |  |  | 4.5.2 (2) = 400 ha |  |  |
| Sub-activity 1.1.2.3: Distribute Year 2 foundation seed to a set of 250 good farmers identified in Year 1 and increase the scale of activities per farmer (from 0.1 ha to 0.2 ha seed fields) [this activity is listed as 2017 but it is for 2018 as rainfall season starts before 2018] | 1-Nov-17 | 1-Dec-17 | A2, D9 | Seed packaged in 20 kg packs and distributed to at least 250 skilled farmers for seed production for a target of 75 tonnes QDS at 1500 kg/ha productivity level | On-going experiments |  |  | 4.5.2 (2) = 50 ha |  |  |
| Sub-activity 1.1.2.4: Distribute nearly 30 tonnes of ‘QDS’ produced by seed farmers that Africa RISING engaged in Year 1 to 3000 new farmers | 1-Nov-17 | 1-Dec-17 | A2, D9 | 30 t QDS seed produced by farmers distributed to 3000 farmers at 10 kg each for seed production | Seed distribution list and report |  |  |  |  |  |
| Sub-activity 1.1.2.5: Procure and distribute appropriate soybean inoculants | 1-Nov-17 | 1-Dec-17 |  | 1500 Soybean inoculants distributed to all farmers receiving specific soybean varieties for both seed production and grain production | inoculants distribution list | Economic (Input use intensity, Market orientation) | Input per ha; (field, farm, HH); % land in cash crops (HH); |  |  | Machinga/Mangochi/Golomoti/Dedza |
| Sub-activity 1.1.2.6: Conduct refresher training of trainers to support 250 seed farmers each of whom will over the next year support 10 farmers each | 1-Jan-18 | 1-Jun-18 |  | 7 Refresher training courses held across study sites | Training report and attendance list |  |  |  |  |  |
| Sub-activity 1.1.2.7:  Conduct yield cut estimates on legume seed productivity for 50% randomly selected farmers participating in seed production and farmer grain fields | 1-May-18 | 30-May-18 | A2, B4 and E12 | Grain legume seed and grain productivity estimation protocols developed and yield estimations field surveys implemented | Field protocols. Yields cuts raw data available, completed questionnaires available; draft report | Productivity (Crop productivity, Crop biomass productivity, Variability of production); Economic (Profitability, Returns to land and labor, Market participation) | Yield (Field, farm), Net income (Field); monetary value of output/input used (Field, farm) ; % production sold |  | Scientific publication on yield gaps in legumes |  |
| Sub-activity 1.1.2.8: Organize and hold field days/field training during the production cycle | 1-Feb-18 | 1-May-18 |  | At least 7 field days and field -based training conducted across project sites | Minutes of field days; field days reports, photographs, | Social (Gender equity, social cohesion) | Capacity (access to information); Cross -cutting (rating of technologies by gender) {Field, farm, household] |  |  | ALL sites (Machinga/Mangochi/Dedza) |
| Sub-activity 1.1.2.9: Identifying, coordinating with, and complementing the relevant ongoing USAID/Malawi seed systems projects in the region (e.g. MISST, etc.) | 1-Feb-18 | 1-May-18 |  | At least one cross-learning tour with related seed systems projects conducted, involving lead farmers from Mangochi and Machinga | Exchange visits report | Social domain (Gender equity, Social cohesion) | Capacity (access to information); Cross -cutting (rating of technologies by gender) {Field, farm, household] |  |  | Machinga and Mangochi |
| Sub-activity 1.1.2.10 Produce common bean seed of 2 drought tolerant varieties during May-September 2018 through irrigation | 1-May-17 | 1-Oct-18 |  | At least 10 t improved drought tolerant common bean seed produced | Records of seed harvested, seed in storage | Productivity (Crop productivity, Crop biomass productivity, Variability of production); Economic (Profitability, Returns to land and labor) | Yield (Field, farm), residue production (Field, farm), Coefficient of variability (Field, farm), Net income (Field); monetary value of output/input used (Field, farm) |  |  |  |
| Sub-activity 1.1.2.11: Conduct post harvest training on saving seed for maintaining viability until next cropping season (including for other related USAID supported projects) – yearly activity | 1-Jul-18 | 1-Sep-18 |  | 7 post-harvest seed preservation trainings conducted for lead farmers, extension staff and other partners | Training reports available | Productivity (Post-harvest losses) | % harvest lost (Household) | 4.5.2(5)/EG11-1 = 700 farmers |  |  |
| **Project Outcome 2: Natural resource integrity and resilience to climate change enhanced for the target communities and agro-ecologies** | | | | | | | | | | |
| **Output 2.2: Innovative options for land and water management in selected farming systems demonstrated at strategically located learning sites [and scaled in Outcome 5]** | | | | | | | | | | |
| Activity 2.2.1: Set up demonstration and learning sites in target ESA communities | | | | | | | | | | |
| Sub-activity 2.2.1.1: Set up on-farm SI based mother trials and demonstration plots in action sites (adapted to the specific agroecological conditions of Mangochi and Machinga) | 1-Dec-17 | Jan-18 | B2; What is the status of soils moisture under different management regimes treated with different SI (soils moisture management) technologies? | Number of mother trials increased from 4 to 10 for each of the 5 EPAs, for a total of 50 mother trials | on-going experiments; mother trials yield data files available May 2018 | Productivity (Crop productivity, Crop biomass productivity, Variability of production); Economic (Profitability, Returns to land and labor) | Yield (Field, farm); Net income (Field); Monetary value of output/input used (Field, farm); residue production (Plot, farm); coefficient of variability (Field, farm); net icome (field/plot); monetary value of outpu/input used | 4.5.2 (5)/ EG11-1 = 50 |  | Machinga/Mangochi |
| Sub-activity 2.2.1.2: Test ecologically sound integrated nutrient and water management practices for enhanced productivity under semi-arid conditions | 1-Dec-17 | Dec-18 | B2; What is the status of soils moisture under different management regimes treated with different SI (soils moisture management) technologies? | • Field protocols in water and nutrient management at farm and landscape scales  • Field trials established on efficient organic -inorganic nutrient combinations developed • Monitor nutrient and water dynamics in nutrient x residue management trials • Doubled-up legume technology + tied ridges | On- going experiments, field protocols | Productivity (Crop productivity); Environment (Erosion) | Yield (Field, farm); rating of erosion (plot/field) | 4.5.2 (7)/EG11-5 = 100 ha | Scientific publication based on two years data and experiments across three agroecologies |  |
| Sub-activity 2.2.1.3: Establish N response and precision experiments along a climate gradient in Machinga (Ntubwi, Msanama and Nyambi) | 1-Dec-17 | Dec-18 | B2; What is the status of soils moisture under different management regimes treated with different SI (soils moisture management) technologies? | At least 6 experiments established on sandy and clay soils | On- going experiments, field protocols | Productivity (Yield gap); Economic (Profitability, Input use efficiency); Environmental (Soil chemical quality) | Yield (Field, farm); net income (Plot/field); input per ha (Field, farm); soil nutrient levels (field/plot) |  | Preliminary manuscript on precision N management |  |
| Sub-activity 2.2.1.4: Study soil water-nutrient relations for selected SI technologies using access tubes among other techniques | 1-Dec-17 | Dec-18 |  | New soil water probes installed at on-farm, research sites |  | Productivity (Yield gap); Economic (Profitability, Input use efficiency); Environmental (Soil chemical quality, Erosion) | Yield (Field, farm); net income (Plot/field); input per ha (Field, farm); soil nutrient levels (field/plot) |  |  | Machinga/Mangochi |
| Sub-activity 2.2.1.4: Establish nutrient and residue management trials along a climate gradient in Machinga and mangochi districts | 1-Dec-17 | Dec-18 | A1, A2, B4; How best could adaptive water management practices be implemented to positively respond to extreme weather conditions (drought/excess rainfall)? | 8 residue and N management trials established and monitored | On- going experiments, field protocols | Productivity (Yield gap], Economic (Profitability, Input use intensity); Environmental (Soil chemical quality) | Yield (Field, farm); Net income (Plot/field); input per ha (Field, farm); Total carbon, soil nutrient levels (Field/plot) |  | PhD thesis draft chapter, and draft manuscript for publication | ALL |
| Sub-activity 2.2.1.5: Establish and maintain long term SI experiments in Linthipe and Golomoti EPAs of Dedza | 1-Dec-17 | Dec-18 |  | 10 long term experiments established and maintained in Linthipe and Golomoti EPAs | On- going experiments, field protocols | Productivity (Crop productivity); Environment (Soil biology) | Yield (Field, farm); (Plot/field); total carbon, soil nutrient levels, biological nitrogen fixation (Field/plot) |  |  | Dedza |
| Sub-activity 2.2.1.6: LUANAR graduate students experiments established in different study sites (yield gap analysis - improved seed vs >5 generations farmer retained seed) | 1-Dec-17 | Jun-18 |  | At least 6 graduate student experiments established in Linthipe and Ntubwi | On- going experiments, field protocols | Productivity (Crop productivity, Crop biomass productivity, Variability of production); | Yield (Field, farm); residue production (Plot/field); coefficient of variability |  |  |  |
| **Output 2.3: Inclusive approaches and methods for collective action to deliver innovative water, soil and land resources management piloted in target communities [and scaled in Outcome 5]** | | | | | | | | | | |
| Activity 2.3.1: Conduct and evaluate participatory and inclusive testing of approaches within the demonstration sites for improving access to and use of water resources for supplementary irrigation to address rainfall variability | | | | | | | | | | |
| Sub-activity 2.3.1.1: Facilitate implementation of >2000 baby trials across sites, all involving water conservation tied-ridging practice | 1-Dec-17 | Dec-18 |  | >2000 baby trials implemented across sites |  |  |  |  |  |  |
| **Project Outcome 3: Food and feed safety, nutritional quality, and income security of target smallholder families improved equitably (within households)** | | | | | | | | | | |
| **Output 3.2: Nutritional quality improved through increased accessibility and use of nutrient-dense crops and livestock products** | | | | | | | | | | |
| Activity 3.2.1: Promote and deploy nutrient-rich crop varieties and livestock feed resources in target communities | | | | | | | | | | |
| Sub-activity 3.2.1.1: Produce nutrient dense and two drought tolerant common bean varieties under irrigation for broader dissemination of the technology during 2019 | 1-May-18 | Oct-18 |  | Common bean seed production on at least 5 ha land | Field protocols; field maps , GPS coordinates | Productivity (Crop productivity); Human condition (Nutrition, Food security) | Yield (Field/plot, farm); Protein production (Field/plot, farm); food availability (HH), total food production (community) |  |  | Machinga/Mangochi |
| Sub-activity 3.2.1.2: At least 2000 farmers producing soybean and groundnut grain using QDS produced by farmers engaged in Year 1 in Machinga and Mangochi | 1-Dec-17 | Aug-18 |  | At least 400 ha under improved groundnut and soybean production | List of beneficiaries each cropping >0.2 ha | Productivity (Crop productivity); Human condition (Nutrition, Food security) | Yield (Field/plot, farm); Protein production (Field/plot and farm); Food availability (HH), Total food production (Community) | 4.5.2 (5); 4.5.2 (2) = 400 ha |  | All |
| Sub-activity 3.2.1.3: Develop and test food products for infants and young children feeding | 1-Jan-18 | Oct-18 | What combination of nutritious products are more acceptable by infants and young children? | At least 3 food recipes under development | Technical reports/draft paper | Human condition (Nutrition, Food safety); Social (Gender equity) | Protein production (Field/plot); Biological contaminats (HH); Capacity (Access to information), Achievements (nutrition, food security) (Field, farm, HH) |  |  | All |
| **Output 3.3: Capacity of farming communities and partners to consume nutrient-dense crops and livestock product enhanced** | | | | | | | | | | |
| Activity 3.3.1: Conduct packaging and delivery of crop and fodder varieties and associated management practices through community and development partnerships with iterative reviewing and refining. | | | | | | | | | | |
| Sub-activity 3.3.1.1: Develop and access delivery of different packages on food production and dietary diversity | 1-Jan-18 | Dec-18 | What are the available nutrition extension education delivery methods that are appropriate for improving adoption of good dietary practices among target households? |  | Technical report/draft manuscript |  |  |  |  | ALL |
| Sub-activity 3.3.1.2: Conduct processing and value addition workshops for various crop/livestock products | 1-Apr-18 | Nov-18 | Does processing of crop/livestock products increase access to diversified diets? | One technical report/draft paper | Samples of products | Human condition (Nutrition, food safety); Social (Gender equity) | Access to nutritious food; Biological contaminats (HH); Capacity (access to information) (HH) | 4.5.2 (39) = 2 protocols |  | Golomonti, Linthipe |
| **Project Outcome 5: Partnerships for the scaling of sustainable intensification research products and innovations operationalized** | | | | | | | | | | |
| **Output 5.1: Opportunities for the use and adoption of sustainable intensification technologies identified for relevant farm typologies** | | | | | | | | | | |
| Activity 5.1.1: Farmer participatory experimentation with crop and soil management and integrated crop-livestock technologies in on-farm situations | | | | | | | | | | |
| Sub-activity 5.1.1.1: Track farm sizes, cropping patterns and diversity through targeted farm surveys | 1-Mar-18 | 1-Jun-18 | C8 | At least one landscape approach to consider proportion of land that can be allocated to legumes on farms – and how this relates to farm size developed | Panel survey report | Social (Gender equity, Social cohesion) | Land access by gender, income by gender (HH) |  |  |  |
| Sub-activity 5.1.1.2: Conduct annual panel surveys in study sites, and establish current levels of utilization of SI agricultural technologies | 1-Mar-18 | 1-Jun-18 | C8 | Annual survey done in study sites involving intervention and non-intervention farmers during March-April 2018 | Survey report completed | Productivity (Crop productivity); Human condition (Food security); Social (Gender equity; Social cohesion) | Yield (Plot); Food production (Field, farm); Food availaibility (HH); Access to information, Rating of technologies by group, Participation in collective action (HH level) |  |  | ALL |
| Activity 5.1.2: Use farm trial data to apply crop simulation models and assess performance over space and time, including assessment of climate-smart technologies to establish the potential for adaptation and mitigation | | | | | | | | | | |
| Sub-activity 5.1.2.1: Couple crop simulation modeling with remote sensing models (4.0 and 4.1) to explore the impacts on ecosystem services of doubled up legumes technology and other shrub/tree based systems | 1-Apr-18 | 30-Dec-18 | How do variations in rainfall pattern, soils types, soil water management techniques affect the yield of maize and legumes in maize+legume cropping systems? | Preliminary modeled APSIM datasets, based on mother trials data and PhD student managed experiments | Field protocols, data files, model simulation outputs, technical reports | Productivity (Crop productivity); Environmental (water availability) | Yield (Plot); soil moisture (Field/plot level) |  | Draft manuscript | ALL |
| Activity 5.1.3: Establish adaptive field experiments with mineral and animal-derived organic manure | | | | | | | | | | |
| sub-activity 5.1.3.1: Assess optimal use of locally available organic nutrient resources (residues, manure,….) in combination with NPK and urea | 1-Dec-17 | 1-Sep-18 |  | A protocol developed | At least two field experiments with organic/mineral fertilizers theme set up in each community | Productivity (Crop productivity); Economic (Profitability); Environmental (Soil chemical quality) | Yield (Plot/field); Net income (Plot/field); Soil nutrient levels (Plot/field) |  | Draft paper | ALL |
| Sub-activity 5.1.3.2: Determine spatial and temporal soil moisture and N dynamics under different mineral and organic nutrients management | 1-Dec-17 | 1-Dec-18 | B2; What is the status of soils moisture under different management regimes treated with different SI (soils moisture management) technologies? | At least 6 sequential samplings completed between December 2017 and April 2018 | Scientific publication submitted | Environment (Water availability, Soil chemical quality) | Soil nutrient levels (Plot level metrics); soil moisture (Field/plot ) |  |  | ALL |
| Sub-activity 1.1: Implement adaptive water management practices (e.g. tied ridges as part of responding to adverse rainfall conditions | 1-Dec-17 | 1-Dec-18 | A1, A2 and B4; How best could adaptive water management practices be implemented to positively respond to extreme weather conditions (drought/ excess rainfall)? | At least 2000 farmers practicing soil and water conservation measures in Machinga and Mangomchi districts | Report on the best way of designing tied ridges to save moisture during drought conditions and drain excess water during times of excess rainfall | Environment (Water availability, soil chemical quality) | Soil nutrient levels (Plot), Soil moisture (Plot/field) |  |  | ALL |
| Activity 5.1.6: Disseminate best-fit integrated crop-livestock technologies to reach and have effect on small-scale farmers in a landscape context | | | | | | | | | | |
| Sub-activity 5.1.6.1 Support dissemination of Africa RISING SI technologies through development partners (e.g. CRS, Njira, Climate Proofing GEF, SANE) | 1-Jan-18 | 1-Dec-18 | E12 | Bulletins/ technical briefs | Number of extension packages developed | Human condition (Capacity to experiment, Nutrition) | Access to nutritious foods, # of new practices being tested (HH) | 4.5.2 (7)/EG11-5 = 1500 ha |  | ALL |
| Activity 5.1.7 Conduct cost-benefit and gender analysis coupled with other socio-economic analyses to identify and quantify adoption constraints and opportunities for different farmer contexts | | | | | | | | | | |
| Sub-activity 5.1.6.1: Promote use of monitoring and evaluation tracking adoption by researchers (Panel survey during March\_June2018) | 1-Mar-18 | 1-Jun-18 | C8 | Panel survey questionnaires completed, reports | Panel survey held | Social (Gender equity); Human condition (Food security) | Access to information; Rating of technologies, Food availability (HH) |  |  | ALL |
| **Output 5.2: Strategic partnerships with public and private, initiatives for the diffusion, and adoption of research products established** | | | | | | | | | | |
| Activity 5.2.1: Map and assess relevant stakeholders to establish dialogue for the exploration of mutual synergies for scaling delivery of validated technologies | | | | | | | | | | |
| Sub-activity 5.2.1.1: Hold joint workshops with relevant stakeholders in research sites | 1-May-18 | Dec-18 | C8 | Workshop reports | Workshop report for each meeting held |  |  |  |  | Machinga/Mangochi |
| Activity 5.2.2: Leverage/link and integrate (engagement and outreach) with existent initiatives including Government extension systems to support and encourage the delivery pathways | | | | | | | | | | |
| Sub-activity 5.2.1.1: Hold field days with active participation of respective District Agricultural Extension Coordinating Committees (DAECC) | 1-Feb-18 | Aug-18 | C8 | Field day reports | Number of filed days and a report documenting, attendance, experiences and lessons during the event |  |  |  |  | ALL |
| **Output 5.4: A technology adoption, monitoring, evaluation, and learning framework for use by the project team and scaling partners released [led by IFPRI and used by project partners]** | | | | | | | | | | |
| Activity 5.4.1: Monitor and modify the progress of technology adoption process towards scaling | | | | | | | | | | |
| Sub-activity 5.4.1.1: Use IFPRI project tracking tools regularly |  |  |  |  | Data uploaded regularly |  |  |  |  | ALL |
| Activity 5.4.2: Develop knowledge sharing centers and learning alliances within existent local and regional institutions | | | | | | | | | | |
| Sub-activity 5.4.2.1: Support and strengthen learning platforms with upscaling partners | 1-Jan-18 | Dec-18 | E11, E12 | Platforms supported/ platform meetings held regularly | Quarterly reports | Human condition (Capacity to experiment; Food safety) | # of new practices being tested; Biological contaminants tracking (HH) |  | Extension materials tailored for NGO partners | Machinga, Mangochi |

1. **Tanzania**

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| **Program Purpose:** | | | | | | | | | | |
| *To provide pathways out of hunger and poverty for smallholder families through sustainably intensified farming systems that sufficiently improve food, nutrition, and income security, particularly for women and children, and conserve or enhance the natural resource base.* | | | | | | | | | | |
|  | ***Start date*** | ***End date*** | ***Research Question (From ESA Phase II Proposal; e.g. A1, C8)*** | ***Milestone (Tangible descriptors; e.g. number of experiments; number of trainings conducted)*** | ***Means of Verification (Refer to attached new log frame for guidance)*** | ***SI Domain and Indicators (Refer to SI Indicator Framework Guide)*** | ***SI Indicator Metrics and Level of Measurement (Refer to SI Indicator Framework Guide)*** | ***FtF Indicators and Targets*** | ***Custom Indicators (and Targets)*** | ***Action Sites*** |
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| **Project Outcome 1: Productivity, diversity, and income of crop-livestock systems in selected agro-ecologies enhanced under climate variability** | | | | | | | | | | |
| **Output 1.1: Demand-driven, climate-smart, integrated crop-livestock research products (contextualized technologies) for improved productivity, diversified diets, and higher income piloted for specific typologies in target agro-ecologies *[and scaled in Outcomes 4 and 5]*** | | | | | | | | | | |
| Activity 1.1.1: Assess and iteratively improve crop-livestock combinations from Phase I | | | | | | | | | | |
| Sub-activity 1.1.1.1: Complete evaluation for release of drought tolerant groundnut, pigeon pea, sorghum, pearl millet and DT QPM maize | 1-Dec-17 | 30-Aug-18 | A2 | A final list of new varieties entered into variety release applications from 10 candidate lines tested (two each of groundnut, pigeon pea, sorghum, pearl millet and maize) | Progress reports, variety release applications as applicable | Productivity (Crop productivity) | Yield (kg/ha) measured at plot and field level | 4.5.2.(2 ) = 10 ha, 4.5.2 (39) = 10 genotypes | success stories (2), technology protocols (2) [one each for legumes and dryland cereals for evaluation], draft paper (1), flyers on new varieties (4) [1 for each crop] |  |
| Sub-activity 1.1.1.2: Conduct integrated community breeding and management studies for poultry | 1-Dec-17 | 30-Sep-18 | A1, A2 | At least two improved chicken breeds generated at 6 sites and 1 community action group mobilized in each district for poultry production | Progress reports, draft publication | Productivity (Animal productivity) | Weight gain and eggs laid measured at animal scale (plot) and farm level | 4.5.2 (5) =2 | community action research groups mobilized for community based poultry improvement (2), draft paper (1), updated training manual on poultry rearing (1) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| Activity 1.1.2: Evaluate and implement pathways that are effective at improving access to seeds and clonal materials of modern varieties of legumes, cereals, vegetables, and forages | | | | | | | | | | |
| Sub activity 1.1.2.1: Wrapping up informal seed systems for legumes, cereals studies. We will leverage ICRISAT led CGIAR implemented HOPE for dryland cereals and TLIII for legumes to support this activity. | 1-Dec-17 | 30-Aug-18 | A3 | One seed bank and satellite nursery established per village linked to TLIII and or HOPE activities | Progress reports, activity reports of the partners | Productivity (Crop productivity) | Yield (kg/ha) measured at field level | 4.5.2 (12) = 1, 4.5.2 (27) = 7 | community seed banks further supported in the target villages (2), draft paper on community seed systems (1), updated training manual on seed handling at community level (1) | Kongwa and Kiteto |
| Sub activity 1.1.2.2: Bulk early seed generation seed of key crop varieties to feed-into established seed systems | 1-Dec-17 | 30-Aug-18 | A2 | 2 private sector agencies engaged in early seed generation production systems in partnership with ARI-Hombolo | Progress reports, activity reports of the partners | Productivity (Crop productivity) | Yield (kg/ha) measured at field level | 4.5.2 (12) = 1, 4.5.2 (27) = 7 | private agencies engaged in seed production (at least 1 per district), community seed banks established in each of the target villages (7) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| **Output 1.2: Demand-driven, labor-saving and gender-sensitive research products to reduce drudgery while increasing labor efficiency in the production cycle piloted for relevant typologies in target areas [and scaled in Outcomes 4 and 5]** | | | | | | | | | | |
| Activity 1.2.1: Support local partners through training on appropriate drudgery-reducing technology delivery | | | | | | | | | | |
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| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| Activity 1.2.2: Co-adapt existing mechanization options with target communities | | | | | | | | | | |
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| **Sub Total** |  |  |  |  |  |  |  |  |  |  |
| **Output 1.3: Tools (including ICT-based) and approaches for disseminating recommendations in relation to above research products, integrated in capacity development [and used in Outcomes 4 and 5]** | | | | | | | | | | |
| Activity 1.3.1: Conduct extrapolation domain analysis based on GIS, agro-ecology, and crop model-generated information to establish the potential of technologies for geographical reach | | | | | | | | | | |
| Sub-activity 1.3.1.1: Complete targeting technologies to typologies for scaling | 1-Sep-17 | 30-Jul-18 | B4 | Complete refinement of farm typologies for Kongwa and Kiteto cropping and farming systems | Research reports | (1) Productivity (Crop and Animal productivity); (2) Economic (Profitability-output sold X price – input costs); (3) Environment (Soil quality-index and Erosion); (4) Human (Nutrition-Diversity of crops grown (% of all land) disaggregated by consumption versus sale) | (1) Crop yield (kg/ha) measured at field level; animal-weight gain, eggs produced; (2) Gross margins for all crops at farm level; (3) P factor (practice to reduce erosion) at farm level; (4) # of types of food available from own production at household level,  Protein produced (kg/ha) at farm level | 4.5.2 (7) = 4, 4.5.2 (5) = 400 | draft paper on targeting technologies (1) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| **Project Outcome 2: Natural resource integrity and resilience to climate change enhanced for the target communities and agro-ecologies** | | | | | | | | | | |
| **Output 2.1: Demand-driven research products for enhancing soil, land and water resources management to reduce household/community vulnerability and land degradation piloted in priority agro-ecologies [and scaled in Outcome 5]** | | | | | | | | | | |
| Activity 2.1.1: Characterize current practices in ESA through identifying formal and informal arrangements for access to and use of water and land resources | | | | | | | | | | |
| Sub-activity 2.1.1.1: Complete studies on resilience value of tree-based technologies | 1-Dec-18 | 30-Sep-18 | C7, E12 | The study on performance of legume intercropping, basin planting and tied-ridges tillage completed to gain a better understanding of their resilience value | Research report | (1) Productivity (Crop productivity); (2) Economic (profitability-output sold X price – input costs); (3) Social (Gender equity) | (1) Crop, fodder, wood yield (kg/ha) measured at field level; (2) Profitability (output sold X price – input costs) at plot and field level; (3) Women Empowerment in Agriculture Index at community level | 4.5.2 (2) = 60 ha | draft manuscript on resilience value of tree technologies and livelihood impacts (1) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| Activity 2.1.2: Identify opportunities for using supplementary irrigation in different farming systems of the ESA target country agro-ecologies | | | | | | | | | | |
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| **Output 2.2: Innovative options for land and water management in selected farming systems demonstrated at strategically located learning sites [and scaled in Outcome 5]** | | | | | | | | | | |
| Activity 2.2.1: Set up demonstration and learning sites in target ESA communities | | | | | | | | | | |
| Sub activity 2.2.1.1: Scaling-out imperatives for erosion control through assessment of implementation requirements for erosion management technologies at community level | 1-Dec-18 | 30-Sep-18 | C6, C7, D9 | Farmer led demonstrations on water harvesting technologies in Kongwa and Kiteto studied to inform scaling out requirements | Progress reports, activity reports of the partners | (1) Productivity (Crop productivity); (2) Human (Capacity to experiment); (3) Social-(Social cohesion and Collective action) | (1) Yield (kg/ha) measured at plot and field level; (2) # of new practices being tested for erosion control/management; (3) Participation in community activities measured at household level, Participation in a collective action groups measured at household level | 4.5.2 (2) = 100 ha, 4.5.2 (5) = 20, 4.5.2 (7) = 3 | draft manuscript on scaling of erosion control approaches (1), flyer on erosion control (1), updated training manual on band construction (1) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| **Output 2.3: Inclusive approaches and methods for collective action to deliver innovative water, soil and land resources management piloted in target communities [and scaled in Outcome 5]** | | | | | | | | | | |
| Activity 2.3.1: Conduct and evaluate participatory and inclusive testing of approaches within the demonstration sites for improving access to and use of water resources for supplementary irrigation to address rainfall variability | | | | | | | | | | |
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| **Project Outcome 3: Food and feed safety, nutritional quality, and income security of target smallholder families improved equitably (within households)** | | | | | | | | | | |
| **Output 3.1: Demand-driven research products to reduce postharvest losses and improve food quality and safety piloted in target areas [and scaled in Outcome 5]** | | | | | | | | | | |
| Activity 3.1.1: Conduct packaging and delivery of postharvest technologies through community and development partnerships with iterative review, refining, and follow-up | | | | | | | | | | |
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| **Output 3.2: Nutritional quality improved through increased accessibility and use of nutrient-dense crops and livestock products** | | | | | | | | | | |
| Activity 3.2.1: Promote and deploy nutrient-rich crop varieties and livestock feed resources in target communities | | | | | | | | | | |
| Sub-activity 3.2.1.1: Complete 1000-day nutrition studies underpinned by consumption of nutrient dense legume and cereals and aflatoxin free diversified nutritious food | 1-Dec-18 | 1-Sep-18 | A2, B7, E12 | At least 20 households in each village (4 villages) two per district, utilizing PHT for management of legumes and other, nutrient dense options as the pilot learning to inform scaling efforts | Progress reports, activity reports of the partners | (1) Social (Gender equity); (2) Human (Nutrition-Diversity of crops grown (% of all land) disaggregated by consumption versus sale, Nutrition awareness) | (1) Women Empowerment in Agriculture Index at household level; (2) # of members with adequate knowledge on breastfeeding, complementary feeding, Weight for age/height and height for age measured at household level | 4.5.2 (11) = 100 mothers and children | draft paper for publication (1), flyer on suitable feeding regimes based on designed feeding formulations (1) | Kongwa and Kiteto |
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| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| **Output 3.3: Capacity of farming communities and partners to consume nutrient-dense crops and livestock product enhanced.** | | | | | | | | | | |
| Activity 3.3.1: Conduct packaging and delivery of crop and fodder varieties and associated management practices through community and development partnerships with iterative reviewing and refining. | | | | | | | | | | |
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| **Project Outcome 4: Functionality of input and output markets and other institutions to deliver demand-driven sustainable intensification research products improved** | | | | | | | | | | |
| **Output 4.1: Access to profitable markets for smallholder farming communities and priority value chains facilitated** | | | | | | | | | | |
| Activity 4.1.1: Conduct comprehensive value-chain analysis with specific focus on SI technologies | | | | | | | | | | |
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| Activity 4.1.2: Conduct a value chain stakeholder analysis (stakeholder mapping) | | | | | | | | | | |
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| Activity 4.1.3: Develop a value chain enhancement strategy (including collective action approaches, contractual arrangements, and standardization | | | | | | | | | | |
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| Activity 4.1.4: Identify and evaluate existing mechanisms that inform farmers about dynamic market needs | | | | | | | | | | |
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| Activity 4.1.5: Conduct an analysis of the existing baseline survey data and supplement them with qualitative surveys from target regions | | | | | | | | | | |
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| **Project Outcome 5: Partnerships for the scaling of sustainable intensification research products and innovations operationalized** | | | | | | | | | | |
| **Output 5.1: Opportunities for the use and adoption of sustainable intensification technologies identified for relevant farm typologies** | | | | | | | | | | |
| Activity 5.1.1: Farmer participatory experimentation with crop and soil management and integrated crop-livestock technologies in on-farm situations | | | | | | | | | | |
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| Activity 5.1.2: Use farm trial data to apply crop simulation models and assess performance over space and time, including assessment of climate-smart technologies to establish the potential for adaptation and mitigation | | | | | | | | | | |
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| Activity 5.1.3: Establish adaptive field experiments with mineral and animal-derived organic manure | | | | | | | | | | |
| Sub-activity 5.1.3.1: Conduct studies on the resilience value of ISFM based technologies with farmers in high and low potential sites including economic activities | 1-Dec-17 | 30-Sep-18 | C7, E12 | At least 300 demos on crops yields and economic benefits of using fertilizer micro dose-legume combinations by farmers | Research report | (1) Productivity (Crop productivity); (2) Economic (Profitability-output sold X price – input costs); (3) Social (Gender equity) | (1) Yield (kg/ha) of crops, fodder, wood measured at field level; (2) Gross margin at plot and field level; (3) Women Empowerment in Agriculture Index at household level | 4.5.2 (2) = 60 ha | draft manuscript on evaluation of fertilizer micro dosing by farmers [year 2] (1) |  |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| Activity 5.1.4: Demonstrate the use and impact of crop residues, forages, and other organic resources as animal feed and nutrient resources | | | | | | | | | | |
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| Activity 5.1.5: Use crop-livestock models for trade-off analysis | | | | | | | | | | |
| Sub activity 5.1.5.1: Trade-off analysis on the fate of technologies in different farm types. This study focuses on interrogating crop-livestock models for trade-off analysis. | 1-Sep-17 | 30-Jul-18 | B4 | A study on trade-off to refine typologies for Kongwa and Kiteto cropping and farming systems conducted | Research reports | (1) Productivity (Crop productivity); (2) Economic (Profitability-output sold X price – input costs); (3) Human (Nutrition-Diversity of crops grown (% of all land) disaggregated by consumption versus sale); (4) Social (Gender equity) | (1) Yield (kg/ha) of crops, fodder, wood measured at field level; (2) Gross margin at plot and field level; (3) # of types of food available from own production at household level,  Protein produced (kg/ha) at farm level; (4) Women Empowerment in Agriculture Index at household level | 4.5.2 (7) = 4, 4.5.2 (5) = 400 | draft paper on targeting technologies (1) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| Activity 5.1.6: Disseminate best-fit integrated crop-livestock technologies to reach and have effect on small-scale farmers in a landscape context | | | | | | | | | | |
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| Activity 5.1.7: Conduct cost-benefit and gender analysis coupled with other socio-economic analyses to identify and quantify adoption constraints and opportunities for different farmer contexts | | | | | | | | | | |
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| **Output 5.2: Strategic partnerships with public and private, initiatives for the diffusion, and adoption of research products established** | | | | | | | | | | |
| Activity 5.2.1: Map and assess relevant stakeholders to establish dialogue for the exploration of mutual synergies for scaling delivery of validated technologies | | | | | | | | | | |
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| Activity 5.2.2: Leverage/link and integrate (engagement and outreach) with existent initiatives including Government extension systems to support and encourage the delivery pathways | | | | | | | | | | |
| Sub-activity 5.2.2.1: Engage policy (local to regional level) to enhance adoption of proven erosion and water management technologies | 1-Nov-17 | 30-Apr-18 | A1, B4, D9 | At least two policy information meetings held at district level one each for Kongwa and Kiteto, two policy briefs developed and translated, local extension material developed and provided to public extension services in Kongwa and Kiteto | Progress reports, activity reports of the partners | (1) Productivity (Crop productivity); (2) Human (Capacity to experiment); (3) Social (Social cohesion and Collective action) | (1) Yield (kg/ha) measured at plot and field level; (2) # of new practices being tested for erosion control/management measured at hh level; (3) Participation in community activities measured at household level, Participation in a collective action groups measured at household level | 4.5.2 (2)= 60 ha, 4.5.2 (5) = 10 | fodder tree production log book (1), research publication (1), flyer on climate smart agriculture (150 copies distributed), policy briefs (2) | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| **Output 5.3: Gender-sensitive decision support tools for farmers to assess technology-associated risk and opportunities used by partners** | | | | | | | | | | |
| Activity 5.3.1: Identify and communicate gender-sensitive decision support technologies in the context of different farm typologies | | | | | | | | | | |
| Sub-activity 5.3.1.1: Conduct gender analysis of selected ISFM & cropping system interventions | 1-Jan-18 | 30-Sep-18 | B4, C6, C7 | A study on gender analysis for ISFM and crop system conducted | Research reports | (1) Human (Capacity to experiment) (2) Social (Gender equity) | (1) # of new practices being tested for ISFM and crop management measured at household level; (2) Women Empowerment in Agriculture Index at household level | 60 persons | draft paper for publication (1) | Kongwa and Kiteto |
| **Sub Total** |  |  |  |  |  |  |  |  |  |  |
| **Output 5.4: A technology adoption, monitoring, evaluation, and learning framework for use by the project team and scaling partners released [led by IFPRI and used by project partners]** | | | | | | | | | | |
| Activity 5.4.1: Monitor and modify the progress of technology adoption process towards scaling | | | | | | | | | | |
| Sub-activity 5.4.1.1: Complete the BTTS in gender disaggregated manner | 1-Dec-17 | 30-Sep-17 | C8 | M & E tools used (BTT, Dataverse and other options by scientists) | Progress report | Human (Capacity to experiment) | # of new practices being tested for crop management and ISFM at household level, # of farmers experimenting at village level |  | data uploaded on Dataverse by respective scientists as per Africa RISING data management plan | Kongwa and Kiteto |
| **Subtotal** |  |  |  |  |  |  |  |  |  |  |
| Activity 5.4.2: Develop knowledge sharing centers and learning alliances within existent local and regional institutions | | | | | | | | | | |
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